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ORIGINAL ARTICLE

The transsexual: what about the future?

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Summary – Since the 1950s, sexual surgical reassignments have been frequently carried out. As this surgical therapeutic procedure is controversial, it seems important to explore the actual consequences of such an intervention and objectively evaluate its relevance. In this context, we have carried out a review of the literature. After looking at the methodological limitations of follow-up studies, the psychological, sexual, social, and professional futures of the individuals subject to a transsexual operation are presented. Finally, prognostic aspects are considered. In the literature, follow-up studies tend to show that surgical transformations have positive consequences for the subjects. In the majority of cases, transsexuals are very satisfied with their intervention and any difficulties experienced are often temporary and disappear within a year after the surgical transformation. Studies show that there is less than 1% of regrets, and a little more than 1% of suicides among operated subjects. The empirical research does not confirm the opinion that suicide is strongly associated with surgical transformation.

Transsexualism / Follow-up / Literature review

INTRODUCTION

The transsexual, or those who declare that they do not belong to their original sex and who ask for an anatomical-surgical intervention in order to resolve their gender dysphoria, is a term that was defined for the first time in the beginning of the 1960s. At the same time, Georges Jorgensen, photographer and ex-GI, went to Denmark in order to become transformed into a woman [36]. This transformation can be considered as the first complete sex change, involving surgical operations, hormone administration and post-operative follow-up.

The technical possibility of surgical sex change has opened up a debate concerning the legitimacy and utility of carrying out such an intervention at the request of the transsexual. Diagnostic, psychological, medical, and ethical arguments have been brought forth, both for and against surgical sex change. Nonetheless, anatomical transformation through surgical means has become a common practice. The goal of the present paper is review the literature concerning the consequences of such transformations.

An analysis of the various follow-up studies is particularly difficult as the majority of studies differ in many respects. For example:

– The transsexualism concept has been modified, accompanied by corollary revisions of the diagnostic criteria.

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– Study populations vary in terms of factors such as the number and age of subjects, type of transsexuals (FM and/or MF[1]), transformational phase, etc.
– The methods of data analysis utilised vary considerably.

Firstly, we will present aspects that make comparisons of studies difficult. Then, we will present the results of global assessments of the outcome after transformation, and of the psychological, sexual, social, and professional future of transsexuals.

DIFFICULTIES ASSOCIATED WITH FOLLOW-UP RESEARCH

Comparisons of follow-up studies of transsexualism are difficult due to:
– the evolution of diagnostic criteria [3,39], and consequently, the subjects included in the studies—as a function of the development of the transsexualism concept;
– the limited accessibility of the target population;
– the duration of the follow-up [2,6,14,40,42,45,50,52,57,78,90,110,115];
– the age of the applicant at the moment of the transformation request [3,37,57,59,66,104,105,110];
– the variety of assessment methods: some studies are based on clinical impressions [93,116], others on instruments such as the *Minnesota Multiphasic Personality Inventory* (MMPI), the Rorschach, the *Thematic Apperception Test* (TAT) or the *Draw-a-person test*, the *Body Image Scale* [4,29,30,41,44,58,62,72,73,79,80] or the *Symptom Checklist 90-revised* (SCL-90-R), the *Crown Crisp Experiential Index* (CCEI) and the *Bem Sex Role Inventory* (BSRI) [14,66,67];
– the possibility of selection bias—individuals with good responses to surgery were over-represented in the study population, whereas those with a poor response were less likely to be represented—seems to be controlled by the variety of results (in some studies, even if good results have been exposed, minor difficulties have been also presented);
– the objectivity of the assessors—and also of the subject (subjects reported verbally that they were doing well, even though objective measures of their functioning indicated less satisfactory response surgery)—which has to be rigorously controlled (it seems that the researchers who are implicated in operative decisions are more inclined to publish convincing results [56], this is why certain authors have carried out their follow-up studies in collaboration with authors who did not intervene during the diagnostic phase [22,28,45,49,70,76,77,90,96,100]).

Table I. Percentage of satisfaction in FM subjects as reported in different reviews of the literature.

Author	*n*	Satisfied		Dissatisfied		Uncertain		Suicide regret	
		n	%	*n*	%	*n*	%	*n*	%
Benjamin [6]	15		93.3		6.7				
Pauly [85]	40		95				5		
Pauly [86]	83	67	80.7	5	6.0	11	13.3	0	
Lundström et al. [65]	124	111	89.5	12	9.7			1	0.8
Green and Fleming [33]	130	126	97	4	3				

FM: female-to-male subjects.

RESULTS FROM FOLLOW-UP STUDIES

Global assessment of the future, post-operative

Since Hertz' first publication [41], hundreds of studies have examined the consequences of sex change. Through the years, they have been the subject of a large number of reviews [2,34,62,66,83,84,87].

Most of the time, the results of these studies have been regrouped according to the degree of satisfaction of the subjects in regard to their transformation. Thus, a satisfactory result reflects a subject who is happy with the surgical transformation with an adequate adjustment to his/her role. In contrast, an unsatisfactory result is seen in subjects whose psychological and social condition has worsened after the operation (compared to the subject's pre-operative condition).

Satisfaction–dissatisfaction

According to Pauly [86], nearly three-fourths of transsexuals are satisfied with their transformation. Higher percentages were even reported in a review by Green and Fleming [33] (97% of 130 FM subjects) (*Table I*).

[1] For ease of presentation, female transsexuals will be referred to as FM (female-to-male) subjects, whilst male transsexuals will be reffered to as MF (male-to-female) subjects.

Beyond figures that reveal that nearly 90% of transsexuals are satisfied, this satisfaction is also clearly expressed when they are asked the question "If you could do it again, would you?", where the large majority (more than 90%) reply affirmatively [10,18,19,61,68,69,96].

An unsatisfactory result is observed in approximately 10% of cases. This percentage is lower in FM subjects (6% [87]; 9.7% [66]; 3% [34] compared to MF (8.1% [87]; 10.3% [66]; 13% [34]) subjects.

Regrets

Immediately after the surgical intervention, certain subjects experience a period of dissatisfaction that can lead to *regret*. This feeling is generally temporary and most often disappears during the year following the surgical transformation, without necessitating any new interventions [88]. Most often, it results from the confrontation of various difficulties (e.g., post-operative pains, surgical complications, unsatisfactory surgical results, departure of the partner, job loss, family conflicts, etc.).

More serious and long-lasting regrets are rare. In a review of the literature, Pfäfflin and Junge [89] report less than a percentage of regrets in FM subjects, and from 1% to 1.5% in MF (similar results have been reported by Kuiper: 0.5% in FM, 1.2% in MF subjects [50]) subjects (*table II*). An examination of the difficulties met by these different subjects reveals three major sources of regret: (1) diagnostic error (certain subjects show clear signs of psychosis); (2) absence of a *real life test* (the subjects were not part of a prolonged assessment of the adaptation of their new gender); (3) surgical interventional protocols which are not adequately adapted and the presence of deceiving surgical results (certain subjects had to wait for long periods of time before being able to proceed to the surgical interventional stage; several subjects suffered from surgical results that were aesthetically unsatisfactory and/or not very functional).

Suicide

In the literature, depressed mood, suicidal thoughts, suicidal threats, suicidal attempts, and suicides are often grouped under the general term "suicide" [89] which constitutes a clear source of confusion.

Suicidal attempts

Before surgical transformation, at least 20% of subjects have suicidal tendencies (i.e., suicidal thoughts leading to a suicide attempt) [23,51,104,105,112]. Suicidal attempts can also be observed after the surgical transformation. Most often, they are the consequences of emotional problems [44] or surgical complications (inherent in sexual transformation) [25,56,107] where in this latter case, they do not reappear as long as the surgical problems have been rectified [60,107].

Table II. Percentage of satisfaction in MF subjects as reported in different reviews of the literature.

Author	*n*	Satisfied		Dissatisfied		Uncertain		Suicide	
		n	%	*n*	%	*n*	%	*n*	%
Benjamin [7]	15		93.3		6.7				
Pauly [86]	40		95				5		
Pauly [81]	283	202	71.4	23	8.1	52	18.7	6	2.1
Lundström [66]	368	323	87.8	38	10.3			7	1.9
Green [34]	200	191	87	28	13	1	< 1%		

MF: male-to-female subjects.

Suicide

Very few studies report suicide in sex change applicants. When it is mentioned, it is most often in cases where the transformation request was refused [64]. On the contrary, Kuiper observed that on average, 1.2% of suicides in MF and 0.5% in FM subjects [50] occur after surgical transformation. Other reviews report slightly higher percentages: 1.9% in MF, and 0.8% in FM subjects [65,84].

In their review, Pfäfflin and Junge [89] report 16 suicides (from approximately 1000 to 1600 MF and from 400 to 550 FM subjects) after sex change. According to them, these suicides should not be systematically attributed to the sex change. Errors in medication, overdoses, medical complications (not imputable to the surgical transformation [115]), in addition to job loss or the appearance of emotional difficulties [37,44,110] could lead to this fatal issue.

The psychological future

Historical perspective

By definition, the transsexual suffers from a constant feeling of psychological discomfort as far as the appearance of the anatomical sex is concerned. A relief from this discomfort is sought through sex change. It is surprising to see the rarity of psychological follow-up studies [60,89] and the superficial interpretation of the results in most studies [89].

In order to understand this paucity, one must go back to the 1950s when transsexual requests appeared in great numbers and where transsexualism was consid-

ered (under the impetus of Benjamin) as a constitutional problem (a problem unchanged since childhood) by members of the medical world, and where therapy was limited to hormonal and surgical procedures. For more than 20 years, these physicians would argue for the superiority of surgical treatments and deny the potentials of psychotherapeutic methods, which were considered coercive and useless [5,31,35,40,53,85,110].

On the other hand, a large number of psychologists and psychiatrists, with the exception of Stoller, were formally opposed to all surgical transformation of transsexuals, in spite of the absence of empirical support [34,63,71,81,103]. According to these latter authors, surgical transformation would inevitably lead to suicide or psychotic breakdown.

In a very progressive way, other authors [2,113,115,116] accepted hormonal and surgical treatment, while at the same time, recognising the importance of adjoining a psychotherapeutic approach (most often supportive therapy) to this medical approach. Consequently, before any hormonal-surgical transformation, they recommended preliminary psychotherapeutic treatment (lasting at least 1 year), and encouraged subjects to accept being followed-up after the transformation [60,61]. In the beginning of the 1980s, the *Harry Benjamin International Gender Dysphoria Association* (HBIGDA) affirmed the utility of such a treatment scheme.

In the past few years, the necessity of a psychotherapeutic follow-up throughout the transformation period and beyond has been generally accepted [15,21,26,91,95,101], as even transsexuals themselves realise that surgery does not resolve everything and that it is difficult to adequately assume an unfamiliar gender role [95]. It is therefore appropriate to prepare them during the real life test and then after the transformation, to help them to confront the emotional, social, and sexual difficulties of their new appearance [16,38,67,89,95]. This brief glimpse of the rehabilitation of gender identity disorders reveals a growing interest in psychological approaches to the rehabilitation of the transsexual applicant in parallel with the surgical transformation. Therefore an increase in the literature devoted to psychological aspects of the rehabilitation of transsexuals is expected.

Psychological factors

According to Pfäfflin and Junge [89], sexual transformation success depends closely on several concrete intervening factors, either before surgical transformation (stay in contact with the treatment centre; live in the desired role; receive hormonal treatment; benefit from a psychological and psychiatric follow-up) or during and after the transformation (proceed to a surgical transformation; take advantage of quality surgical interventions; change civil status).

If all these aspects are met, successful adaptation to the new identity can be expected, resulting in some subjects the lack of desire for a psychiatric follow-up [27] (except to obtain the necessary documentation for a civil status change or starting post-operative assessment [91]).

While the majority of follow-up studies have considered the effects of the surgical transformation, certain studies have attempted to measure the evolution of the subject during the different phases of this conversion [11,27,66,67,76].

Comparing diverse populations of transsexuals at different times in the rehabilitation process (during the diagnostic phase, the real life test and in the 6–24 months that follow the surgical operation), Mate-Kole et al. [66] found evidence of the positive influence of sex change on the psychological functioning of the subject. On all the scales of the CCEI, operated transsexuals obtained significantly lower scores, compared with subjects during the diagnostic phase or the real life test. Consequently, they presented fewer signs of depression, floating anxiety, obsessive behaviour, somatic anxiety and hysteria. Furthermore, they observed that subjects during the real life test suffer less from depression and somatic anxiety, compared to those during the diagnostic phase.

Two years later, Mate-Kole et al. [67] compared, among other aspects based on the CCEI, two groups of transsexual applicants. In the first group, the operation was planned some months later, and in the second, the surgical transformation was planned much later. All subjects were then reassessed after a period of 2 years. The first group received different transformation operations, whereas the second was still waiting for surgery. Although both groups obtained similar results in the initial evaluation, 2 years later, the results for the transformed subjects were significantly better than those of the other group. The operated transsexuals presented a clear decrease of neurotic symptoms compared to subjects waiting for the transformation [67].

Fahrner et al. [27] also showed that transsexuals in the beginning stages of rehabilitation presented improvements in depressed mood, psychological stabi-

lity, and familial and professional relations. Several authors have observed this improvement had started from the beginning of the real life test [11,12,47,48,51]. Two explanations have been proposed. Firstly, the recognition of the syndrome medically justifies and authorises the wearing of clothes of the opposite sex, which leads to a decrease of depression and anxiety. Secondly, the subject is guaranteed to be operated on, which for him is a true relief. Indeed, according to Kuiper and Cohen-Kettenis [51], if the operation were not to take place, these gains would disappear.

Apart from differences during the various phases, certain disparities between FM and MF subjects are observed. Although they receive the same rehabilitation (reuniting the seven elements underlined by Pfäfflin and Junge [89]), FM subjects present a more favourable outcome compared to MF subjects [12,27,40,51,62,65,84,104,105]. In a review article on the results obtained from psychological tests administrated to transsexuals, Lothstein [62] observes that FM subjects are more stable, present fewer psychopathological perturbations, and seem better adapted to the transformation. According to Kuiper and Cohen-Kettenis [51], this latter aspect is related to the fact that the masculinisation of FM subjects is less identifiable than the feminisation of MF subjects (e.g., certain physical characteristics of the preceding sex remain more identifiable in MF, than in FM subjects: voice timbre, size, size of hands and feet, etc.). In contrast, the risk of being discovered and of being subject to mockery is less in the FM transsexual, compared to a man having feminine habits.

Overall few clinical studies have been conducted on the basis of psychological instruments. The MMPI was sometimes used to define the psychological profile of the transsexual before or after the surgical transformation [28,32,52,97,98,102,111], but a comparison of the pre- and post-operative results of the same subjects is rare [4,29,44].

Studies, based on Rorschach analyses of transsexual candidates to determine the genesis of the disorder or to shed light to certain particularities of the psychic functioning, are relatively recent [17,19,73,79,80], and only Fleming et al. [30], Lothstein [61] and Michel [74] have compared protocols before and after the operation. Rorschachs administered at 5-year intervals in the studies by Fleming et al. [30] and Michel [74] show any significant modification of either the personality or psychological functioning of subjects.

The sexual future

At the beginning of the 1970s, certain authors considered transsexualism as a hyposexual problematic [87,90,114]. At present, some researchers still defend that transsexuals do not show interest in sexuality and do not have quality sexual relations [16]. However, although the transsexual may not place sexuality at the centre of his/her personal interests, particular attention is accorded to the future of the subject's sexual pleasure after the operation. In this sense, the transsexual problemat is not hyposexual, but consists mostly of an extreme gender identity disorder, where the interest to become sexual is far from being negligible.

Thus, the functionality of the sexual organ is considered as primordial in transsexual subjects. In MF subjects, the most frequent dissatisfaction is related to the limited depth of the new vagina which does not permit a satisfactory penetration [26,60,70,95,107]. In FM subjects, the difficulty in obtaining an adequate phallic plastic surgery can be the source of discontent [42,49,60,73,78,92,104,105,115]. Indeed, in 1986, Walters argued that unless better surgical techniques are available, it would be preferable not to carry out such transformations. Progress in surgery may help make more satisfactory results a reality [26].

The observations of a number of writers [38,44,49,55,60,91,115] seem to indicate that the surgical transformation leads to a notable improvement in sex life, in addition to an increase in sexual activity. These improvements seem to be related to the change of the physical appearance.

Once they have been operated, certain transsexuals find a partner much easier, enjoy more stable relations, and feel more confident and more attractive in having a sex that corresponds with their gender identity [9,91,107]. Blanchard [9] has shown that the more MF subjects are anxious about getting rid of all preceding masculinity and are motivated to create an artificial femininity (by resorting to supplementary feminisation processes such as capillary electrolysis and mammary implants), the more it is probable that they will find a masculine partner and have a stable situation. In general, MF subjects look for new partners whereas FM subjects tend to stay with the same partner [9,15,48].

The changes related to sexual pleasure on the one hand, and meeting another partner on the other hand, could be attributed to a compatibility between the lure of the body and the subject's gender identity. However, in cases, where the appearance of the genital organs is

unsatisfactory (penis size, aesthetics of the lips, etc.), the well-being of the transsexual is affected [6,40,42,43,53,56,65,84,92,94,99,107,115]. It is therefore understandable that transsexuals ask for supplementary interventions in order to perfect the aesthetics of their sex. In general, the more the physical characteristics of the original sex remain observable, the more probable the subject will meet difficulties [99].

In contrast, results related to orgasmic pleasure are not as unanimous. Certain authors [60,91] observe that MF subjects experience an orgasm more frequently than FM subjects, while others [55] have observed the opposite. According to Rakic et al. [91], this difference could be due to personal factors independent of transsexualism and the surgical transformation. In general, the decrease of orgasmic capacities in certain subjects would be due to the absence of the sexual habits of couples and not to the physical transformation itself. In this sense, the absence of orgasmic pleasure could result in sexual difficulties independent of the surgical transformation, i.e., difficulties commonly found in couples in general.

The social future

In the majority of cases, transsexuals enjoy richer and more extensive social relations after the operation [1,16,42,53,91,92]. Being finally transformed in accordance with their wish, subjects become more receptive and active in different social activities (team and individual sports, contact with family and friends, going to restaurants and discotheques, etc.) [21,68,95] and frequently benefit from a more satisfactory contact with the family [21,68,107]. Thus, after the sexual transformation, transsexuals come out of their social isolation and dare to engage in activities that were largely avoided. This improvement of social relations is attributed to the suitability of the gender and the anatomical identity.

At the same time, certain transsexuals (in particular MF subjects) suffer from limitations and superficiality of their social contacts [51,60]. The main complaints include the absence of a sexual partner, decrease of social contacts, and alterations in relations with certain family members and friends. Such difficulties are most often due to physical problems (voice, stature, absence of a penis, vagina or breasts, etc.) or to difficulties in assuming the past in the presence of new partners. Thus, the physical capacity of passing as a woman (or as a man in the case of FM subjects) is primordial: the more the initial state remains discernible, the worse will be the subject's position in society [99].

The professional future

The impact of the surgical transformation on the professional situation of transsexuals tends to vary very much. Certain authors [94,104,105] suggested that the professional future of transsexuals is most often disastrous. They lose their initial job and experience great difficulties in finding a similar professional occupation. For the majority of authors [12,27,60,75,78,107], the situation is less alarming. Many operated subjects keep their jobs or, if necessary, exercise another activity. Based on the literature, Kuiper [50] observes that 71% of MF subjects and 83% of FM subjects have a job after surgical transformation. Compared to the professional status before the transformation, this situation is improved in 42% of MF subjects and in 48% of FM subjects, whereas it is worsened in 13% of MF subjects and 12% of FM subjects; i.e., it stays stable for 40% of MF and 37% of FM subjects.

However, it should be mentioned that even if certain transsexuals keep their initial job, it is sometimes modified, reflecting a certain misogyny in employers in regard to MF subjects. Thus, transsexuals (MF) employed in important positions have been, following their transformation, relegated to positions with less responsibility. These observations have led certain authors to conclude that the transformation is positively correlated with the socio-economic status in a positive manner for FM subjects and in a negative manner for MF subjects [9,15].

The nature of the job before the transformation seems to influence the future of the applicant. If the applicant exercises a profession that is in relationship with the desired sex, the probability to conserve the job is high [60,91]. Thus, during the real life test, it is necessary to orient the applicants towards jobs that are more closely associated with their gender identity.

Prognostic elements

As sex change is an important and irreversible transformation, it is crucial to identify before the operation, the signs that will permit to predict the evolution (favourable or not) after the operation [14,26,46,47,57,99,116].

In the abundant literature on this topic, no less than 20 different negative criteria have been mentioned:

older age at the moment of the request, presence of morphological characteristics of the appearance of the biological sex that are too pronounced, choice of heterosexual object before the transformation, unsatisfactory social support, mental instability, emotional vulnerability, criminal record, military service accomplished, professional activity that is not appropriate to the desired sex, lack of comprehension and integration of the limits and direct consequences of the surgery, self-mutilations, alcohol abuse, ambivalence regarding the surgery, etc. These different factors do not represent true contra-indications, although they should instil prudence.

Apart from the absence of psychopathology, the criteria most frequently mentioned are the biological sex, the choice of a sexual object (homosexual or non-homosexual) and the age at the moment of the request.

The choice of a partner

Blanchard et al. [14] observed that the choice of a same-sex partner before the surgical transformation (which would constitute a heterosexual couple after the operation) has the best prognosis, compared to the choice of a partner of the opposite sex (which would constitute a homosexual couple after the intervention). Subjects, where the object (before the operation) was heterosexual, regret the sex change intervention more, compared to transsexuals where the object was homosexual [9,14]. Walinder et al. [116] and Kockott and Fahrner [47] published similar conclusions. Thus, while the treatment of subjects where the partner was heterosexual before the operation necessitates greater prudence, it must not cause refusal of their request [14].

Age at the time of the request

Homosexual transsexuals (i.e., transsexuals who, before the operation, choose partners of their own sex) are referred by certain authors as true transsexuals [108], and by others as primary transsexuals [87]. These homosexual transsexuals ask for surgical transformation earlier, and present a more precocious and intense identification of the opposite sex [47,65]. Thus, the earlier the request, the better the results will be. On the contrary, a late request for transformation (after 30 years of age) is associated with a bad prognosis. The pejorative incidence of age was identified by Walinder et al. [116] at the end of the 1970s, and was recently confirmed by Eldh et al. [26] in a study including 90 operated transsexuals: the patients who regretted the operation were older than 30 years at the moment of the sexual transformation.

Similarly, Spengler [106] observed that bad prognosis is associated with hesitant subjects, e.g., who may also postpone the request. However, according to Doorn [24], it is clear that the secondary transsexual (most often type MF) is tormented by many difficulties (e.g., he is often married, has children, etc.) that prevent the subject from carrying out his wish. In this sense, a request that occurs later in life does not have to be systematically viewed as negative as it may reflect aspects of the subject's family situation. Reid [96] combined two of these factors (age and choice of a heterosexual object) and observed that the higher frequency of post-operative regrets in transsexuals who were initially heterosexual (i.e., who were married or who had a family life) is more understandable than those regrets in subjects who had attempted for a number of years to ignore their conviction to become a woman (or a man) and to live, without much success, in their original sexual role (partner, father, colleague, etc.).

The social structure

The presence of an adequate social structure is mentioned most often. Affective and family support is primordial for a successful conversion and must be present throughout the sexual transformation [47,99,116]. Certain authors [99] have suggested that the presence of such an environment equally helps to reinforce the image of the patient in his/her new gender.

CONCLUSIONS

The goal of our review was to evaluate the future of operated transsexuals and the consequences of anatomical-surgical transformation.

Transsexuals say they are satisfied with their transformation in more than three-fourths of cases. Several criteria for a better prognosis have been identified (request made before 30 years of age, mental and emotional stability; having completed physical as well as behavioural adaptation to the desired sex for at least a year; an integration of the limits and direct consequences of surgery; psychotherapeutic treatment before the surgical treatment). Cases where these criteria are respected yet where the subject is still dissatisfied may be attributed to surgical complications (functional and aesthetic aspects), emotional ruptures, job loss, or difficulties with social relations (e.g., family). However, difficulties are most often temporary and disappear during the year that follows the sexual transformation. What is certain is that very few transsexuals regret

having carried out the transformation (1% in FM and from 1% to 1.5% in MF subjects).

Nonetheless, although certain results may be biased, it is quite clear that surgical-anatomical transformation results in largely more positive effects than what was predicted in the past by physicians and, even more, psychologists. Therefore there is no empirical reason why a sex change request should be systematically refused if the evaluation process respects the indications and if the treatment is performed according to current guidelines.

SUGGESTIONS FOR FURTHER READING

[8,13,20,54,82,109,117]

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